



Department of Environmental Quality



To protect, conserve and enhance the quality of Wyoming's environment for the benefit of current and future generations.

Dave Freudenthal, Governor

John Corra, Director

November 30, 2009

Mr. Jim Sewell
Senior Staff Environmental Engineer
SWEPI, LP
4582 South Ulster Street, Suite 1400
Denver, CO 80237-2642

Permit No. CT-9080

Dear Mr. Sewell:

The Division of Air Quality of the Wyoming Department of Environmental Quality has completed final review of SWEPI, LP's application to establish federally enforceable conditions for the drill rig fleet located in the Jonah and Pinedale Anticline Development Area (JPDA) in Sublette County, Wyoming. All diesel fired drill rig engines will be equipped with selective catalytic reduction (SCR) to reduce NO_x emissions by ninety (90) percent.

Following this agency's proposed approval of the request as published September 18, 2009 and in accordance with Chapter 6, Section 2(m) of the Wyoming Air Quality Standards and Regulations, the public was afforded a 30-day period in which to submit comments concerning the proposed new source, and an opportunity for a public hearing. Public comments were received and have been considered in the final permit. Therefore, on the basis of the information provided to us, approval to construct the Drill Rig Fleet as described in the application is hereby granted pursuant to Chapter 6, Section 2 of the regulations with the following conditions:

1. That authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or is being constructed or installed for the purpose of investigating actual or potential sources of air pollution and for determining compliance or non-compliance with any rules, standards, permits or orders.
2. That all substantive commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as conditions of this permit.
3. That all notifications, reports and correspondences associated with this permit shall be submitted to the Stationary Source Compliance Program Manager, Air Quality Division, 122 West 25th Street, Cheyenne, WY 82002 and a copy shall be submitted to the District Engineer, Air Quality Division, 510 Meadowview Drive, Lander, WY 82520.
4. This permit only applies to the SWEPI, LP Drill Rig Fleet while operating in the Jonah and Pinedale Anticline Development Area (JPDA). The permit conditions contained herein are only enforceable while operating drill rigs in the JPDA.
 - i. The JPDA area consists of 109W & R110W in T34N, R109W & R110W in T33N, R108W, R109W & R110W in T32N, R108W, R109W & R110W in T31N, R107W, R108W & R109W in T30N, R107W, R108W & R109W in T29N, R108W & R109W in T28N, and R107W, R108W & R109W in T27N.

Herschler Building • 122 West 25th Street • Cheyenne, WY 82002 • <http://deq.state.wy.us>

ADMIN/OUTREACH	ABANDONED MINES	AIR QUALITY	INDUSTRIAL SITING	LAND QUALITY	SOLID & HAZ. WASTE	WATER QUALITY
(307) 777-7937	(307) 777-6145	(307) 777-7391	(307) 777-7369	(307) 777-7756	(307) 777-7752	(307) 777-7781
FAX 777-3610	FAX 777-6462	FAX 777-5616	FAX 777-5973	FAX 777-5864	FAX 777-5973	FAX 777-5973



2017-004853-00056

5. That written notification of the actual date of initial start-up for each drill rig/engine/boiler is required fifteen (15) days after start-up as defined in Condition 10. Such notification shall be submitted on a complete AQD-RIG Installation/Removal form. The form can be downloaded from the Air Quality Division website <http://deq.state.wy.us/aqd> or obtained from the Air Quality Division.
6. That upon removal of a drill rig/engine/boiler from the JPDA, written notification is required within fifteen (15) days of removal. Such notification shall be submitted on a complete AQD-RIG Installation/Removal form.
7. That all drill rig engines shall be equipped with selective catalytic reduction (SCR).
8. Total actual annual NO_x emissions from all drill rig engines and boilers associated with the SWEPI, LP Drill Rig Fleet shall not exceed 140 tons per year (tpy) NO_x.
 - i. Total actual annual NO_x emissions from engines on any given drill rig in the SWEPI, LP Drill Rig Fleet shall not exceed 10 tpy per drill rig. This requirement shall become effective January 1, 2010.
 - ii. Drill rig engines shall be equipped with SCR with a minimum NO_x control efficiency of ninety (90) percent.
9. Ammonia slip from each SCR air pollution control system shall not exceed 10 ppm_v at 15% O₂ as measured by initial and periodic testing.
10. SWEPI, LP shall conduct an initial performance test for each drill rig engine no later than ninety (90) days after start-up. Startup shall be defined as follows:
 - i. For drill rig engines in service at the time of permit issuance, the start-up date shall be the permit issuance date.
 - ii. For all other drill rig engines, the start-up date shall be the date the drill rig commences drilling at the first well.

11. Initial performance testing as required by Condition 10 of this permit shall be conducted on the drill rig engines as follows:

NO_x Emissions: Compliance testing for NO_x shall be conducted in accordance with EPA approved reference methods or the State of Wyoming's Portable Analyzer Protocol. Testing shall consist of three (3) runs conducted at the inlet and outlet of the SCR system to determine the NO_x control efficiency. Results shall be reported in terms of percent control efficiency and g/hp-hr. Emissions shall be calculated using the following equation:

$$g/hp - hr NO_x = (ppm NO_{x\text{ corrected}})(1.19 \times 10^{-7})(F_factor)\left(\frac{20.9}{20.9 - O_2\%_{corrected}}\right) \\ (Brake\ Specific\ Fuel\ Consumption(Btu / hp - hr))(10^{-6})(454)$$

VOC Emissions: Compliance testing for VOCs shall be conducted in accordance with a Division approved test method for one (1) engine of each engine type in the fleet.

Formaldehyde Emissions: Testing for formaldehyde shall be conducted in accordance with a Division approved test method for one (1) engine of each engine type in the fleet.

Ammonia Slip: Compliance testing for ammonia slip shall be conducted in accordance with a Division approved test method.

Urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded during each run and submitted with the test report. The report shall also include the commissioning report by Johnson Matthey. Brake specific fuel consumption (BSFC) shall be reported with the results for both the initial performance test and the commissioning report.

A test protocol shall be submitted for review and approval prior to testing. Notification of the test date shall be provided to the Division fifteen (15) days prior to testing. Results shall be submitted to the Division within forty-five (45) days of completion.

12. That each drill rig engine shall be tested quarterly. The first quarterly test is required the following calendar quarter after completion of the initial performance tests required under Condition 11.
- i. Testing for NO_x shall be conducted in accordance with EPA approved reference methods or the State of Wyoming's Portable Analyzer protocol. Testing shall consist of one (1) ten (10) minute run conducted at the inlet and outlet of the SCR system to determine the NO_x control efficiency. Results shall be submitted in terms of percent control efficiency and g/hp-hr. Brake Specific Fuel Consumption (BSFC) shall be provided in the report.

$$g/hp - hr NO_x = (ppm NO_{x\text{ corrected}})(1.19 \times 10^{-7})(F_factor)\left(\frac{20.9}{20.9 - O_2\%_{corrected}}\right) \\ (Brake\ Specific\ Fuel\ Consumption(Btu / hp - hr))(10^{-6})(454)$$

- ii. Testing for ammonia slip shall be conducted using Draeger-Tube detectors or other methods as approved by the Administrator.
 - iii. Urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded during each run and submitted with the test report.
 - iv. A test protocol shall be submitted for review and approval prior to testing. Notification of the test date shall be provided to the Division fifteen (15) days prior to the testing. Results shall be submitted to the Division with the annual emissions inventory required by Condition 14 of this permit.
 - v. The Air Quality Division shall be notified within twenty-four (24) hours of the testing/monitoring required by this condition that shows operation outside the permitted emission limits. By no later than seven (7) calendar days of such testing/monitoring event, the owner or operator shall repair and retest/monitor the affected engine to demonstrate that the engine has been returned to operation within the permitted emission limits. Compliance with this permit condition regarding repair and retesting/monitoring shall not be deemed to limit the authority of the Air Quality Division to cite the owner or operator for an exceedance of the permitted emission limits for any testing/monitoring required by this condition which shows noncompliance.
 - vi. In lieu of quarterly testing, SWEPI, LP may submit for approval an alternative monitoring plan. A minimum of one (1) year of quarterly testing is required before an alternative plan will be considered. If approved, the Division will administratively amend this permit to incorporate the alternative monitoring plan.
13. SWEPI, LP shall follow the monitoring and maintenance requirements for each of the permitted engines equipped with a SCR system.
- i. Operate and maintain the engine, SCR system, and monitoring equipment according to good air pollution control practices. The SCR system shall be operated at all times the drill rig is operating in the JPDA, except when the engine catalyst inlet temperature is less than 500°F. Records shall be kept to document periods when the SCR system is not operating and the engine is operating. The records shall include date, duration and cause.
 - ii. Operate the SCR Emission Control System in accordance with the Johnson Matthey Preventative Maintenance and Service Contract which includes visually inspecting the catalysts and cleaning as necessary. Records shall be maintained of catalyst maintenance and replacement. Upon replacement of the catalyst, performance tests as required by Condition 11 shall be conducted.
 - iii. Records of urea flow (gph), engine load (%), and catalyst inlet temperature shall be recorded, at minimum, daily when the engine is operating. Records of interim spot checks conducted to verify catalyst condition and any maintenance or corrective actions shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

- iv. On or before January 1, 2010, all drill rigs shall be equipped with a datalogger to record urea flow (gph), engine load (%), and catalyst inlet temperature. Data shall be recorded on an interval of fifteen (15) minutes or less. Records shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.

14. SWEPI, LP shall report the following for each well drilled.

- i. Drill Rig ID
- ii. Well API number
- iii. Well name
- iv. Well location (longitude, latitude, elevation)
- v. Drilling start and end dates
- vi. Field name
- vii. Equipment description, controls, and site rating
- viii. Brake specific fuel consumption (BSFC)
- ix. Total fuel usage for drill rig engines and boilers recorded on a daily basis
- x. Heat content and sulfur content of fuel burned recorded from supplier certification
- xi. Actual emissions for NO_x, CO, VOC, SO₂, PM₁₀, ammonia, and formaldehyde
 - 1. For engines, emissions shall be based on fuel consumption, g/hp-hr emission rates, and BSFC. Information recorded in Condition 13 regarding catalyst operation shall be utilized to calculate emissions from the engines.
 - 2. For boilers, emissions shall be based on fuel consumption, lb/MMBtu emission rates or AP-42 factors converted to lb/MMBtu, and BSFC.


The format presented in Appendix A shall be utilized to satisfy reporting requirements for the Division's annual emission inventory, which shall be submitted by March 31 of the following calendar year.

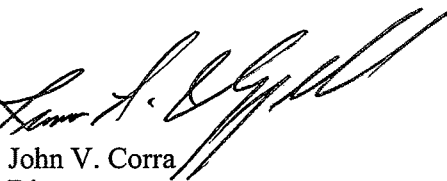
- 15. That drill rigs, boilers or engines that are subject to the conditions of this permit may be replaced without modifying this permit. SWEPI, LP shall provide notifications as required by Conditions 5 and 6 of this permit. The replacement drill rig(s)/engine(s)/boiler(s) shall comply with the conditions of this permit.
- 16. All records required under this permit shall be kept for a period of at least five (5) years and shall be made available to the Division upon request.
- 17. That should drill rig engine(s) meet the definition of a stationary source, SWEPI, LP shall comply with all state and federal regulations applicable for stationary sources.
- 18. SWEPI, LP shall comply with all local, state, and federal rules and regulations applicable to the drill rig fleet.

It must be noted that this approval does not relieve you of your obligation to comply with all applicable county, state, and federal standards, regulations or ordinances. Special attention must be given to Chapter 6, Section 2 of the Wyoming Air Quality Standards and Regulations, which details the requirements for compliance. Any appeal of this permit as a final action of the Department must be made to the Environmental Quality Council within sixty (60) days of permit issuance per Section 16, Chapter I, General Rules of Practice and Procedure, Department of Environmental Quality.

If we may be of further assistance to you, please feel free to contact this office.

Sincerely,


David A. Finley
Administrator
Air Quality Division


John V. Corra
Director
Dept. of Environmental Quality

cc: Tony Hoyt

Appendix A

Drill Rig Emission Reporting Form

Drill Rig Emissions - 2009

Diesel Fuel Consumption

(Sample data entries provided below for January through December 2009)

2009 Drill Rig Diesel Fuel Consumption												
	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)	Rig	Wells	Jan (gallons)	Totals (gallons)		
January												
1	1,600	1,850	1,572	1,800	2,070	1,755	Rig #1	Well #1	41,995	41,995		
2	1,700	2,054	2,390	1,800	1,380	1,990		Well #2	-	-		
3	1,500	1,848	1,572	1,800	2,070	1,726			-	41,995		
4	1,500	1,221	1,889	1,440	1,380	1,274	Rig #2	Well #3	19,696	19,696		
5	1,600	1,848	1,753	1,800	2,300	1,345		Well #4	37,138	37,138		
6	1,000	2,054	1,591	1,620	1,840	978		Well #5	-	-		
7	600	1,848	1,591	1,620	1,870	1,745			-	56,834		
8	1,000	2,054	1,462	1,400	1,840	1,704	Rig #3	Well #6	31,060	31,060		
9	1,200	811	1,809	1,620	1,610	1,453		Well #7	19,579	19,579		
10	1,200	1,848	1,572	1,620	1,840	2,387		Well #8	-	-		
11	1,500	1,233	1,594	1,440	1,610	1,761			-	50,639		
12	1,200	1,027	1,878	1,440	1,840	1,991	Rig #4	Well #9	42,580	42,580		
13	1,300	1,027	1,897	1,800	1,840	1,866		Well #10	8,620	8,620		
14	1,300	1,307	2,341	1,700	1,610	1,945		Well #11	-	-		
15	1,122	2,054	1,992	1,440	1,610	1,990			-	51,200		
16	1,496	1,849	1,580	1,800	1,840	1,876	Rig #5	Well #12	23,490	23,490		
17	1,122	1,849	1,343	1,620	1,840	1,623		Well #13	33,510	33,510		
18	1,122	2,054	1,134	1,080	1,840	1,724		Well #14	-	-		
19	855	1,850	1,778	2,340	1,610	1,920			-	57,000		
20	1,496	2,259	1,787	1,860	2,070	1,395	Rig #6	Well #15	9,068	9,068		
21	1,870	1,644	1,591	2,180	1,840	1,785		Well #16	38,110	38,110		
22	1,663	2,054	1,608	1,980	1,840	1,484		Well #17	-	-		
23	1,496	2,865	2,112	1,580	1,820	1,747		Well #18	-	-		
24	2,203	2,259	1,621	1,620	1,840	1,789			-	47,178		
25	1,309	1,643	1,572	1,280	2,300	1,965			-	-		
26	1,496	2,157	1,594	900	1,820	1,824			-	-		
27	1,309	1,951	1,886	1,700	2,070	1,950			-	-		
28	1,309	2,054	1,908	1,980	1,840	1,769			-	-		
29	1,309	2,054	1,608	1,980	1,840	1,769			-	-		
30	1,309	2,054	1,608	1,980	1,840	1,769			-	-		
31	1,309	2,054	1,608	1,980	1,840	1,769			-	-		
Subtotal	41,995	56,834	50,639	51,200	57,000	47,178						
February												
1	1,600	1,850	1,572	1,800	2,070	1,755	Rig #1	Well #1	38,068	38,068		
2	1,700	2,054	2,390	1,800	1,380	1,990		Well #2	-	-		
3	1,500	1,848	1,572	1,800	2,070	1,726			-	38,068		
4	1,500	1,221	1,889	1,440	1,380	1,274	Rig #2	Well #3	19,696	19,696		
5	1,600	1,848	1,753	1,800	2,300	1,345		Well #4	30,976	30,976		
6	1,000	2,054	1,591	1,620	1,840	978		Well #5	-	-		
7	600	1,848	1,591	1,620	1,870	1,745			-	50,672		
8	1,000	2,054	1,462	1,400	1,840	1,704	Rig #3	Well #6	31,060	31,060		
9	1,200	811	1,809	1,620	1,610	1,453		Well #7	14,755	14,755		
10	1,200	1,848	1,572	1,620	1,840	2,387		Well #8	-	-		
11	1,500	1,233	1,594	1,440	1,610	1,761			-	45,815		
12	1,200	1,027	1,878	1,440	1,840	1,991	Rig #4	Well #9	42,580	42,580		
13	1,300	1,027	1,897	1,800	1,840	1,866		Well #10	2,680	2,680		
14	1,300	1,307	2,341	1,700	1,610	1,945		Well #11	-	-		
15	1,122	2,054	1,992	1,440	1,610	1,990			-	45,260		
16	1,496	1,849	1,580	1,800	1,840	1,876	Rig #5	Well #12	23,490	23,490		
17	1,122	1,849	1,343	1,620	1,840	1,623		Well #13	27,990	27,990		
18	1,122	2,054	1,134	1,080	1,840	1,724		Well #14	-	-		
19	855	1,850	1,778	2,340	1,610	1,920			-	51,480		
20	1,496	2,259	1,787	1,860	2,070	1,395	Rig #6	Well #15	9,068	9,068		
21	1,870	1,644	1,591	2,180	1,840	1,785		Well #16	35,803	35,803		
22	1,663	2,054	1,608	1,980	1,840	1,484		Well #17	-	-		
23	1,496	2,865	2,112	1,580	1,820	1,747		Well #18	-	-		
24	2,203	2,259	1,621	1,620	1,840	1,789			-	44,871		
25	1,309	1,643	1,572	1,280	2,300	1,965			-	-		
26	1,496	2,157	1,594	900	1,820	1,824			-	-		
27	1,309	1,951	1,886	1,700	2,070	1,950			-	-		
28	1,309	2,054	1,608	1,980	1,840	1,769			-	-		
Subtotal	38,068	50,672	45,815	45,260	51,480	44,871						
March												
1	1,500	1,427	1,389	2,480	1,940	784	Rig #1	Well #1	5,200	5,200		
2	800	1,849	1,580	1,600	1,650	1,589		Well #2	31,822	31,822		
3	900	2,259	1,389	1,600	1,940	2,438			-	37,022		
4	1,200	1,849	1,829	1,980	1,640	826	Rig #2	Well #3	-	-		
5	800	1,849	1,224	1,260	1,650	1,803		Well #4	10,656	10,656		
6	800	1,605	1,739	1,600	1,510	1,845		Well #5	38,856	38,856		
7	600	1,821	1,988	1,620	1,680	1,594			-	49,512		
8	950	1,821	1,870	1,440	1,690	1,977	Rig #3	Well #6	-	-		
9	1,500	1,233	1,570	1,440	1,610	2,432		Well #7	22,447	22,447		
10	900	1,232	1,910	1,440	1,610	1,738		Well #8	25,588	25,588		
11	1,300	1,849	1,979	1,440	2,070	1,733			-	48,035		
12	1,150	1,849	1,594	1,440	1,610	1,624	Rig #4	Well #9	-	-		
13	1,150	1,849	1,335	1,440	1,610	1,856		Well #10	37,400	37,400		
14	1,150	1,232	1,000	1,620	1,730	1,835		Well #11	10,270	10,270		
15	1,122	1,849	1,250	1,620	1,610	1,834			-	47,670		
16	1,455	2,054	1,396	1,620	1,610	1,834	Rig #5	Well #12	-	-		
17	950	1,636	1,473	1,600	1,640	1,834		Well #13	10,730	10,730		
18	1,500	1,849	1,591	1,600	1,650	1,834		Well #14	41,160	41,160		
19	1,122	2,054	1,891	1,600	2,070	1,472			-	51,890		
20	1,122	1,849	1,591	1,600	1,670	800	Rig #6	Well #15	-	-		
21	1,496	1,643	1,701	1,600	2,070	300		Well #16	-	-		
22	1,122	1,643	1,165	1,260	1,670	750		Well #17	38,736	38,736		
23	1,455	2,054	1,837	1,080	1,650	850		Well #18	4,119	4,119		
24	1,122	2,054	1,324	1,640	2,070	1,842			-	42,855		
25	1,309	1,232	1,572	750	2,070	720			-	-		
26	1,122	900	1,705	1,250	1,570	650			-	-		
27	1,309	1,643	1,613	1,950	1,680	620			-	-		
28	1,122	1,849	1,594	1,720	1,610	550			-	-		
29	1,650	2,054	1,838	1,420	1,620	835			-	-		
30	1,500	2,510	1,974	1,620	1,610	855			-	-		
31	1,500	1,429	1,429	1,620	1,680	1,168			-	-		
Subtotal	37,022	49,512	48,035	47,670	51,890	42,855						

Drill Rig Emissions - 2009

Natural Gas Consumption

(Sample data entries provided below for January through December 2009)

2009 Drill Rig Natural Gas Consumption												
	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)		Rig	Wells	Jan (gallons)		Totals (gallons)
January												
1	1,600	1,850	1,572	1,800	2,070	1,755		Rig #1	Well #1	41,995		41,995
2	1,700	2,054	2,390	1,800	1,380	1,990			Well #2	-		-
3	1,500	1,848	1,572	1,800	2,070	1,726						41,995
4	1,500	1,221	1,889	1,440	1,380	1,274		Rig #2	Well #3	19,696		19,696
5	1,600	1,848	1,753	1,800	2,300	1,345			Well #4	37,138		37,138
6	1,000	2,054	1,591	1,620	1,840	978			Well #5	-		-
7	800	1,848	1,591	1,620	1,870	1,745						56,834
8	1,000	2,054	1,462	1,400	1,840	1,794		Rig #3	Well #6	31,060		31,060
9	1,200	811	1,809	1,620	1,610	1,453			Well #7	19,579		19,579
10	1,200	1,848	1,572	1,620	1,840	2,367			Well #8	-		-
11	1,500	1,233	1,594	1,440	1,610	1,761						50,639
12	1,200	1,027	1,978	1,440	1,840	1,991		Rig #4	Well #9	42,580		42,580
13	1,300	1,027	1,897	1,800	1,840	1,868			Well #10	8,620		8,620
14	1,300	1,307	2,341	1,700	1,610	1,945			Well #11	-		-
15	1,122	2,054	1,992	1,440	1,610	1,690						51,200
16	1,496	1,849	1,580	1,800	1,840	1,676		Rig #5	Well #12	23,490		23,490
17	1,122	1,849	1,343	1,620	1,840	1,623			Well #13	33,510		33,510
18	1,122	2,054	1,134	1,080	1,840	1,724			Well #14	-		-
19	855	1,950	1,778	2,340	1,610	1,920						57,000
20	1,496	2,259	1,787	1,860	2,070	1,395		Rig #6	Well #15	9,068		9,068
21	1,870	1,644	1,591	2,180	1,840	1,785			Well #16	38,110		38,110
22	1,663	2,054	1,608	1,980	1,840	1,484			Well #17	-		-
23	1,496	2,259	2,112	1,580	1,620	1,747			Well #18	-		-
24	2,203	2,259	1,521	1,620	1,840	1,789						47,178
25	1,309	1,643	1,572	1,280	2,300	1,955						
26	1,496	2,157	1,594	900	1,820	824						
27	1,309	1,851	1,586	1,700	2,070	950						
28	1,309	2,054	1,508	1,980	1,840	1,769						
29	1,309	2,054	1,508	1,980	1,840	1,769						
30	1,309	2,054	1,508	1,980	1,840	1,769						
31	1,309	2,054	1,508	1,980	1,840	1,769						
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)						
Subtotal	41,995	56,834	50,639	51,200	57,000	47,178						

	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)		Rig	Wells	Feb (gallons)		Totals (gallons)
February												
1	1,600	1,850	1,572	1,800	2,070	1,755		Rig #1	Well #1	38,068		38,068
2	1,700	2,054	2,390	1,800	1,380	1,990			Well #2	-		-
3	1,500	1,848	1,572	1,800	2,070	1,726						38,068
4	1,500	1,221	1,889	1,440	1,380	1,274		Rig #2	Well #3	19,696		19,696
5	1,600	1,848	1,753	1,800	2,300	1,345			Well #4	30,976		30,976
6	1,000	2,054	1,591	1,620	1,840	978			Well #5	-		-
7	800	1,848	1,591	1,620	1,870	1,745						50,672
8	1,000	2,054	1,462	1,400	1,840	1,794		Rig #3	Well #6	31,060		31,060
9	1,200	811	1,809	1,620	1,610	1,453			Well #7	14,755		14,755
10	1,200	1,848	1,572	1,620	1,840	2,367			Well #8	-		-
11	1,500	1,233	1,594	1,440	1,610	1,761						45,815
12	1,200	1,027	1,978	1,440	1,840	1,991		Rig #4	Well #9	42,580		42,580
13	1,300	1,027	1,897	1,800	1,840	1,868			Well #10	2,680		2,680
14	1,300	1,307	2,341	1,700	1,610	1,945			Well #11	-		-
15	1,122	2,054	1,992	1,440	1,610	1,690						45,260
16	1,496	1,849	1,580	1,800	1,840	1,676		Rig #5	Well #12	23,490		23,490
17	1,122	1,849	1,343	1,620	1,840	1,623			Well #13	27,990		27,990
18	1,122	2,054	1,134	1,080	1,840	1,724			Well #14	-		-
19	855	1,950	1,778	2,340	1,610	1,920						51,480
20	1,496	2,259	1,787	1,860	2,070	1,395		Rig #6	Well #15	9,068		9,068
21	1,870	1,644	1,591	2,180	1,840	1,785			Well #16	35,803		35,803
22	1,663	2,054	1,608	1,980	1,840	1,484			Well #17	-		-
23	1,496	2,259	2,112	1,580	1,620	1,747			Well #18	-		-
24	2,203	2,259	1,521	1,620	1,840	1,789						44,871
25	1,309	1,643	1,572	1,280	2,300	1,955						
26	1,496	2,157	1,594	900	1,820	824						
27	1,309	1,851	1,586	1,700	2,070	950						
28	1,309	2,054	1,508	1,980	1,840	1,769						
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)						
Subtotal	38,068	50,672	45,815	45,260	51,480	44,871						

	Rig #1 (gallons)	Rig #2 (gallons)	Rig #3 (gallons)	Rig #4 (gallons)	Rig #5 (gallons)	Rig #6 (gallons)		Rig	Wells	Mar (gallons)		Totals (gallons)
March												
1	1,500	1,427	1,389	2,180	1,840	1,781		Rig #1	Well #1	5,200		5,200
2	800	1,848	1,580	1,800	1,850	1,607			Well #2	31,822		31,822
3	900	2,259	2,390	1,600	1,840	2,495						37,022
4	1,200	1,848	1,572	1,800	2,070	1,726		Rig #2	Well #3	-		-
5	1,600	1,848	1,753	1,800	2,300	1,345			Well #4	10,656		10,656
6	1,000	2,054	1,591	1,620	1,840	978			Well #5	38,856		38,856
7	800	1,848	1,591	1,620	1,870	1,745						49,512
8	950	2,054	1,462	1,400	1,840	1,794		Rig #3	Well #6	-		-
9	1,500	1,233	1,594	1,440	1,610	1,761			Well #7	22,447		22,447
10	1,200	1,027	1,978	1,440	1,840	1,991			Well #8	25,588		25,588
11	1,300	1,027	1,897	1,800	1,840	1,868						48,035
12	1,122	2,054	1,992	1,440	1,610	1,690		Rig #4	Well #9	-		-
13	1,496	1,849	1,580	1,800	1,840	1,676			Well #10	37,400		37,400
14	1,122	1,849	1,343	1,620	1,840	1,623			Well #11	10,270		10,270
15	1,122	2,054	1,134	1,080	1,840	1,724						47,670
16	1,496	2,259	1,787	1,860	2,070	1,395		Rig #5	Well #12	-		-
17	1,870	1,644	1,591	2,180	1,840	1,785			Well #13	10,730		10,730
18	1,663	2,054	1,608	1,980	1,840	1,484			Well #14	41,160		41,160
19	1,496	2,259	2,112	1,580	1,620	1,747						51,980
20	2,203	2,259	1,521	1,620	1,840	1,789		Rig #6	Well #15	-		-
21	1,309	1,643	1,572	1,280	2,300	1,955			Well #16	-		-
22	1,496	2,157	1,594	900	1,820	824			Well #17	38,736		38,736
23	1,309	1,851	1,586	1,700	2,070	950			Well #18	4,119		4,119
24	1,309	2,054	1,508	1,980	1,840	1,769						42,855
25	1,309	2,054	1,508	1,980	1,840	1,769						
26	1,309	2,054	1,508	1,980	1,840	1,769						
27	1,309	2,054	1,508	1,980	1,840	1,769						
28	1,309	2,054	1,508	1,980	1,840	1,769						
29	1,309	2,054	1,508	1,980	1,840	1,769						
30	1,309	2,054	1,508	1,980	1,840	1,769						
31	1,309	2,054	1,508	1,980	1,840	1,769						
	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)	(gallons)						
Subtotal	37,022	49,512	48,035	47,670	51,980	42,855						

(Sample data entries provided below)

List all wells drilled by each rig, showing the order of progression of wells drilled throughout the year (Add additional rows as needed to provide data for each well drilled)

Input negative values for Rig Boilers under column heading "Site Rating"

* Use emission factors from actual test data and attach test results inclusive of tested rate

** Emission factors from manufacturer or AP-42 may be used if test data is not available

2017-004853-00056